

## Towards artemia replacement by inert diets in reared *Pseudoplatystoma punctifer* larvae: the dietary protein/lipid ratio affects growth in early larval stages

D. Castro-Ruiz<sup>1,8\*</sup>, G. Estivals<sup>2,8</sup>, P. Quazuguel<sup>3</sup>, C. Fernández<sup>1,8</sup>, J. Núñez<sup>2,8</sup>,  
F. Clota<sup>4,5</sup>, S. Gilles<sup>6,8</sup>, C. García-Dávila<sup>1,8</sup>, F. Duponchelle<sup>2,8</sup>,  
J.-F. Renno<sup>2,8</sup>, E. Gisbert<sup>7</sup>, C. Cahu<sup>3</sup>, M. J. Darias<sup>2,8</sup>

<sup>1</sup>Instituto de Investigaciones de la Amazonía Peruana (IIAP), AQUAREC, Iquitos, Peru

<sup>2</sup>Institut de Recherche pour le Développement (IRD), UMR 207 BOREA, Montpellier, France

<sup>3</sup>IFREMER, UMR LEMAR, Plouzané, France

<sup>4</sup>CIRAD-PERSYST, UMR 110 INTREPID, Montpellier, France

<sup>5</sup>INRA, Unité 0558, Département PHASE, Nouzilly, France

<sup>6</sup>Institut de Recherche pour le Développement (IRD), UMR 226 ISEM, Montpellier, France

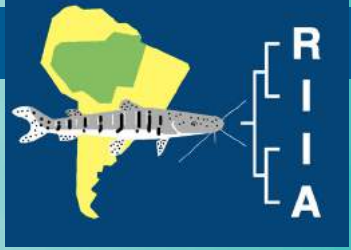
<sup>7</sup>Instituto de Recerca i Tecnologies Agroalimentàries (IRTA), Sant Carles de la Ràpita, Spain

<sup>8</sup>Laboratoire Mixte International Evolution et Domestication de

l'Ichtyofaune Amazonienne (LMI EDIA), Iquitos, Peru

\*dnacastro2003@yahoo.com

The aim of the present study was to test an early weaning in *Pseudoplatystoma punctifer* larvae and to evaluate the influence of different dietary protein and lipids levels and their ratios on larval survival and growth from 3 to 20 days post fertilization (dpf). Larvae were fed from 4 to 7 dpf with artemia nauplii and weaned onto four different inert diets from 5 dpf. These diets contained 40:20, 40:14, 60:20 or 60:14 protein:lipid (in %) levels. A control group was fed with artemia naupli until 13 dpf and weaned onto the 60:14 inert diet within 3 days. Results showed higher growth and survival in the control group compared to the other treatments. Within the groups fed inert diets from 5 dpf, no differences in total larval length were found between the four dietary treatments. However, larval growth in terms of weight was higher in 40:20 group at 12 dpf whereas larvae from 60:20 were bigger at 20 dpf, indicating different nutritional requirements within a short developmental period. The highest survival was observed in the 40:20 group at both 12 and 20 dpf. The results showed that *P. punctifer* larvae could be successfully weaned as early as 5 dpf. The protein:lipid ratio of 2 showed to be the best before 12 dpf, while a ratio of 3 from 12 dpf onwards, these optimal ratios being associated with the higher lipid content. When comparing diets with the same protein level, the increase in dietary lipid led to an improvement in growth, suggesting that protein may be utilized for growth rather than for energy and, therefore, energy from lipid spares protein in fingerlings of *P. punctifer*. Although larvae from the control group displayed 3 times higher growth than those from the other treatments, these are promising results on early weaning towards the total replacement of live prey by inert diets in this species.



RED DE INVESTIGACIÓN SOBRE LA ICTIOFAUNA AMAZÓNICA  
RESEARCH NETWORK ON AMAZONIAN ICHTHYOFAUNA

4<sup>º</sup> COLOQUIO INTERNACIONAL  
4<sup>TH</sup> INTERNATIONAL CONFERENCE  
COCHABAMBA - BOLIVIA - 30.09 - 02.10.2014



# LIBRO DE RESÚMENES

## BOOK OF ABSTRACTS

Organizadores - Organizers



**4° COLOQUIO INTERNACIONAL RIIA  
RED DE INVESTIGACIÓN SOBRE LA ICTIOFAUNA AMAZÓNICA**

***4<sup>TH</sup> RIIA INTERNATIONAL CONFERENCE  
RESEARCH NETWORK ON AMAZONIAN ICHTHYOFAUNA***

**30.09-02.10.2014  
Cochabamba, Bolivia**

**LIBRO DE RESÚMENES  
*BOOK OF ABSTRACTS***

**Editores - *Editors*:  
Maria J. Darias  
Danny Rejas**

**[www.riiaamazonia.org](http://www.riiaamazonia.org)**

Red de Investigación sobre la Ictiofauna Amazónica (RIIA)  
*Research Network on Amazonian Ichthyofauna (RIIA)*  
www.riiaamazonia.org

Editores - *Editors*: Maria J. Darias, Danny Rejas

© 2015 Universidad Mayor de San Simón (UMSS)  
Av. Ballivián esq. Reza #591  
Cochabamba, Bolivia  
www.umss.edu.bo

© 2015 Institut de Recherche pour le Développement (IRD)  
44, boulevard de Dunkerque  
CS 90009  
F-13572 Marseille Cedex 02, France  
www.ird.fr

Darias, M.J. & Rejas, D. (Eds.) (2015). 4º Coloquio Internacional RIIA - Red de Investigación sobre la Ictiofauna Amazónica: Libro de resúmenes. Cochabamba; Marseille: Universidad Mayor de San Simón; Institut de Recherche pour le Développement. 84 p.

*Darias, M.J. & Rejas, D. (Eds.) (2015). 4<sup>th</sup> RIIA International Conference - Research Network on Amazonian Ichthyofauna: Book of Abstracts. Cochabamba; Marseille: Universidad Mayor de San Simón; Institut de Recherche pour le Développement. 84 p.*